

Examples of the amide type of nonionic surfactants include the ammonia, monoethanol and diethanol amides of fatty acids having acyl moieties of from about 8 to about 18 carbon atoms. These acyl moieties are normally derived from naturally occurring glycerides, e.g. coconut oil, palm oil, soybean oil and tallow, but can be derived synthetically, e.g. by the oxidation of petroleum, or by hydrogenation of carbon monoxide by the Fischer-Tropsch process.

Examples of the semi-polar type of nonionic surfactants are the amine oxides, phosphine oxides and sulphoxides. These materials are described more fully in U.S. Patent No. 3,819,528, Berry, issued June 25, 1974, and incorporated herein by reference.

Amphoteric surfactants, which can be used in practicing the present invention can be broadly described as derivatives of aliphatic amines which contain a long chain of about 8 to about 18 carbon atoms and an anionic water-solubilizing group, e.g. carboxyl, sulfo and sulfato. Examples of compounds falling within this definition are sodium 3-dodecylamino-propionate, sodium-3-dodecylamino propane sulfonate, and dodecyl dimethylammonium hexanoate.

Zwitterionic surfactants, which can be used in practicing the present invention can be broadly described as internally-neutralized derivatives of aliphatic quaternary ammonium and phosphonium and tertiary sulfonium compounds, in which the aliphatic radical can be straight chain or branched, and wherein one of the aliphatic substituents contains an anionic water solubilizing group, e.g., carboxyl, sulfo, sulfato, phosphato, or phosphono.